

The presently pending claims 1-8 and 20 have been canceled and replaced by new claims 21-25. These claims are similar to the original claims 1-8 as follows:

New Claim	Original Claim
21	1
22	4
23	5
24	6
25	8

Claim 21 recites a three-layer, flat shaped laminate which is "air-permeable" and has "stretchability and restoration properties". These properties are referred to in applicant's specification on page 3, first paragraph.

Claim 21 further recites a "rubbery elastic inner layer" disposed between two outer layers made of a porous, fibrous or filamentous batting. Reference to this "rubbery elastic" inner layer may be found on page 4, third paragraph of the specification.

Claim 21 further recites that the inner layer consists of "0.5 to 1.5 mm thick strands of a thermoplastic adhesive". This feature may be found on page 8, second paragraph of the specification. Claim 21 goes on to recite

that the strands of adhesive "penetrate partially into the batting material, thus improving attachment." This feature may be found on page 3, last paragraph of the specification.

Finally, claim 21 now recites that "the latticework permits elastic stretching under tensile loading and restoration when the tension is released". Claim 21 thus tracks the language of the specification on page 3, first paragraph, last sentence.

Claim 24, which is identical to applicant's prior claim 6, still refers to the "waffle-like configuration". This language is supported in applicant's specification on page 4, lines 3-5. This "waffle-like configuration" is also shown in Fig. 3.

Applicant's original claims 1-8 and 20 stand rejected under 35 USC §103(a) over U.S. Patent No. 5,415,925 to Austin et al. and U.S. Patent No. 5,681,645 to Strack et al. These rejections are respectfully traversed for the reasons given below.

The invention relates to a three-layer air-permeable laminate consisting of two outer layers made of fibrous material and a rubber-elastic middle layer. Due to the rubber-elastic middle layer, the laminate is extendible

under tensile loading, and is restored to its former shape when the tension is released. According to the invention, the rubber-elastic middle layer consists of an elastic latticework, which is created by the application of adhesive strands to the outer layers. To achieve this, a thermoplastic adhesive is applied in strands, which are so dimensioned in length and cross-section such that they are extendible under tensile loading, and have adequate restoration force after the tension is released. In particular, claim 21 now recites that the adhesive strands exhibit a thickness from 0.1 to 1.5 mm. The adhesive strands are applied to the fiber layers in the heated, low-viscosity state, and in this context penetrate partially into the material, creating an especially good anchoring effect. The laminate of claim 1, as a consequence, exhibits an intermediate layer formed of a rubber-elastic latticework, the material of which is partially impressed into the outer layers and, as a result, is very firmly anchored to the outer layers. The strand thickness of the latticework (0.1 to 1.5 mm) is dimensioned such that the laminate can be extended under tensile loading, and is then restored again when the tension is released.

The U.S. Patent No. 5,681,645 to Strack et al.

describes an elastic air-permeable laminate which is extendible under tensile loading, and is restored to its former shape when the tension is released. The elasticity is created by an elastic intermediate layer made of non-woven material; i.e., an elastic non-woven fleece (column 5, lines 57 to 68). The elastic textile intermediate layer is an intermediate product, which is adhesively bonded to the outer layers with the use of suitable adhesives. The adhesive is preferably applied full-surface, and very thinly, in a volume of, for example 5 gr/m^2 (see column 12, line 23). With the application volume given, an adhesive thickness of about $5\mu\text{m}$ results. This thin adhesive layer does not make any contribution to the elastic properties of the laminate.

The U.S. Patent No. 5,415,925 to Austin et al.

describes a laminate of two outer layers made of non-woven material and an intermediate layer of thermoplastic microfibers. The laminate does not exhibit any rubber-elastic intermediate layer, dimensioned in such a way that the laminate can extend under tensile loading and then be restored again when the tension is released.

The fibrous intermediate layer is adhesively bonded to the outer layers. In this situation, an adhesive is used which sets elastically. The adhesive is applied very thinly, however (see column 4, line 61, to column 5, line 20). In the preferred embodiment (column 5, lines 13-20) an adhesive application volume of less than 5 gr/m² is cited, and in particular an adhesive application volume from 0.25 to 2 gr/m². From these details it follows that the adhesive layer has a layer thickness of less than 5 μ m and preferably a thickness layer of some 0.25 to 2 μ m. These thin layers do not lend the laminates any elastic properties.

In summary, neither Stack et al. nor Austin et al. provide the person skilled in the art with the incentive or knowledge to form the rubber-elastic intermediate layer of a three-layer laminate as a latticework which consists of thick adhesive strands, with which the outer layers are adhesively bonded. In the two cited patents, the intermediate layer consists of an intermediate product which can be processed as a material strip from the roll, and with which the outer layers, consisting of fibrous material, can

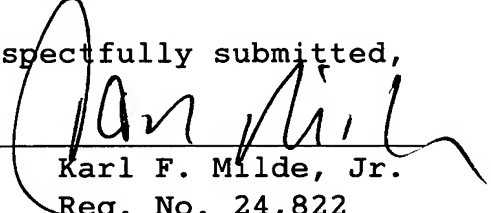
be adhesively bonded. During manufacture of the laminate according to the invention, in which the adhesive strands themselves form a rubber-elastic insert, the additional material strip is done away with. In this situation, according to the invention, very good anchoring of the rubber-elastic material is also achieved with the fibrous outer layers.

Accordingly, applicant's new independent claim 21, as well as its dependent claims 22-25 are believed to distinguish patentably over the patents to Austin et al. and Strack et al.

Accordingly, this application is now believed to be in condition for immediate allowance. A formal Notice of Allowance is therefore respectfully solicited.

Respectfully submitted,

By

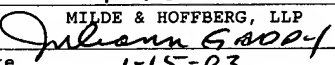

Karl F. Milde, Jr.

Reg. No. 24,822

MILDE & HOFFBERG, LLP
10 Bank Street - Suite 460
White Plains, NY 10606
(914) 949-3100

I hereby certify that this correspondence is being deposited with the United States Postal Services as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231 on

1-15-03

MILDE & HOFFBERG, LLP
By 
Date 1-15-03

VERSION TO SHOW MARKINGS OF CHANGES MADE

IN THE CLAIMS:

Please cancel claims 1-8 and 20 and substitute therefor the following new claims:

-- 21. A three-layer, air-permeable, flat-shaped laminate having stretchability and restoration properties and consisting of:

two outer layers made of a porous material selected from the group consisting of fibrous and filamentous batting; and

a rubbery elastic inner layer disposed between and adherent to said two outer layers;

said inner layer consisting of 0.1 to 1.5 mm thick strands of a thermoplastic adhesive in a latticework configuration which adheres directly to said outer layers and penetrates partially into the batting material thus improving attachment, the thermoplastic adhesive strands having elastic properties at room temperature such that the lattice work permits elastic stretching under tensile loading and restoration when the tension is released.

22. The laminate according to claim 21, wherein the adhesive strands are applied as parallel strips.

23. The laminate according to claim 22, wherein said parallel strips are disposed along a path which is selected from the group consisting of straight and meandering.

24. The laminate according to claim 21, wherein said adhesive strands run in zig-zag or sinusoid curves and wherein each adjacent pair of strands have vertices which touch or overlap in a mirror symmetric configuration, forming a waffle-like configuration.

25. The laminate according to claim 24, wherein the porous material comprises polyolefins. --